WHAT IS CLAIMED IS:

1. A method of forming a boron carbo-nitride layer comprising:

forming a boron carbo-nitride layer on a substrate by chemical vapor deposition using a boron source precursor comprising NR_3:BX_3., wherein X is selected from the group consisting of hydrogen and halide and wherein R is selected from the group consisting of hydrogen, alkyl, allyl, alkenyl, alkynyl alkylaryl, arylalkyl, phenyl, alkene and alkyne.

2. The method according to Claim 1, wherein the chemical vapor deposition is a thermal chemical vapor deposition.

3. The method according to Claim 1, wherein the boron source precursor comprises a dimethylamineborane complex.

4. The method according to Claim 1, wherein each R is the same.

5. The method according to Claim 1, wherein each R is different.

6. The method according to Claim 1, wherein two R components are the same.

7. The method according to Claim 1, wherein forming a boron carbo-nitride layer comprises forming a boron carbo-nitride layer by chemical vapor deposition on an microelectronic substrate using a boron source precursor that includes an amine with hydrogen and/or alkyl groups bonded to BH_3 at a deposition temperature that is less than about 500°C.

8. The method according to Claim 7, wherein the deposition temperature is less than about 420°C.

9. The method according to Claim 7, wherein the deposition temperature is about 360°C.

10. The method according to Claim 1, wherein the precursor has a composition $(CH_3)_2NH:BH_3$.

11. A thermal chemical vapor deposition method comprising:

providing a microelectronic substrate within a chemical vapor deposition chamber;

vaporizing a boron source precursor with a vaporizer to form a flowing vaporized precursor stream; and

directing the flowing vaporized precursor stream to flow into the chamber with the substrate therein under conditions effective to chemical vapor deposit a dielectric layer over the substrate.

12. The method according to Claim 11, wherein the boron source precursor is combined with a nitrogen source and a carbon source.

13. The method according to Claim 12, wherein the nitrogen source is ammonia.

14. The method according to Claim 12, wherein the carbon source is a hydrocarbon.

15. The method according to Claim 14, wherein the hydrocarbon is selected from the group consisting of alkyl, allyl, alkenyl, alkynyl alkylaryl, arylalkyl, phenyl, alkene and alkyne.

16. The method according to Claim 11, wherein a deposition temperature is from about 360°C to 500°C.

17. The method according to Claim 11, wherein the deposition temperature is from about 360°C to 450°C.

18. The method according to Claim 11, comprising depositing the boron carbo-nitride layer to a thickness of from about 20 Angstroms to about 1000 Angstroms.

19. The method according to Claim 11, further comprising vaporizing a second precursor and depositing the second precursor on the first boron carbo-nitride layer.

20. The method according to Claim 11, further comprising combining the vaporized first and second precursors prior to flowing them to the chamber to chemical vapor deposit a first dielectric layer.

21. The method according to Claim 20, further comprising vaporizing a third precursor and depositing the third precursor on the previous deposited layer.

22. An integrated circuit device comprising an amorphous boron carbo-nitride layer.

23. The integrated circuit device of Claim 22, wherein the amorphous boron carbo-nitride layer is substantially uniform.

24. The integrated circuit device of Claim 22, wherein the amorphous boron carbo-nitride layer comprises BC_xN_y, wherein x is in a range from about 0 to about 2, and wherein y is in a range from about 0 to about 1.

25. An integrated circuit device comprising:

a copper interconnect structure including an amorphous boron carbo-nitride barrier layer.

26. The integrated circuit device of Claim 25, wherein the amorphous boron carbo-nitride layer is substantially uniform.

27. The integrated circuit device of Claim 25, wherein the amorphous boron carbo-nitride barrier layer is an etch stop.

28. The integrated circuit device of Claim 25, wherein the amorphous boron carbo-nitride barrier layer is a pore seal.